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**FEDERAL-STATE-PRIVATE
COOPERATIVE SNOW SURVEYS**



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WATER SUPPLY OUTLOOK FOR WASHINGTON

Prepared by

U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and Private organizations.

AS OF
MAY 1, 1972

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters of key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO NUMBER ORC 221-3

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 970, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK FOR WASHINGTON

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

KENNETH E. GRANT

ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

|||||
Released by

ORLO W. KRAUTER

STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
SPOKANE, WASHINGTON

In Cooperation with

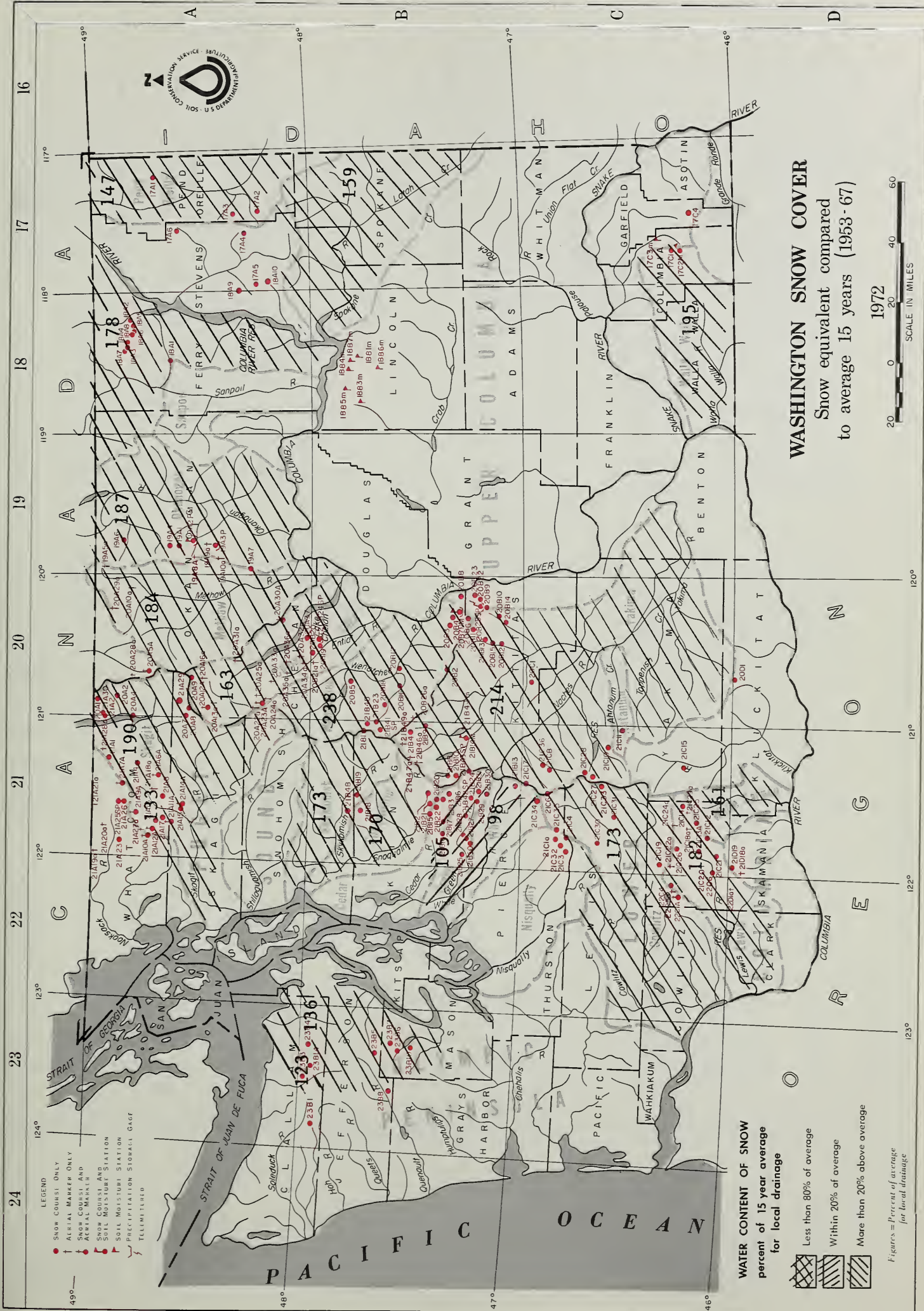
JOHN A. BIGGS

DIRECTOR
DEPARTMENT OF ECOLOGY
STATE OF WASHINGTON
|||||

Report prepared by

ROBERT T. DAVIS, Snow Survey Supervisor

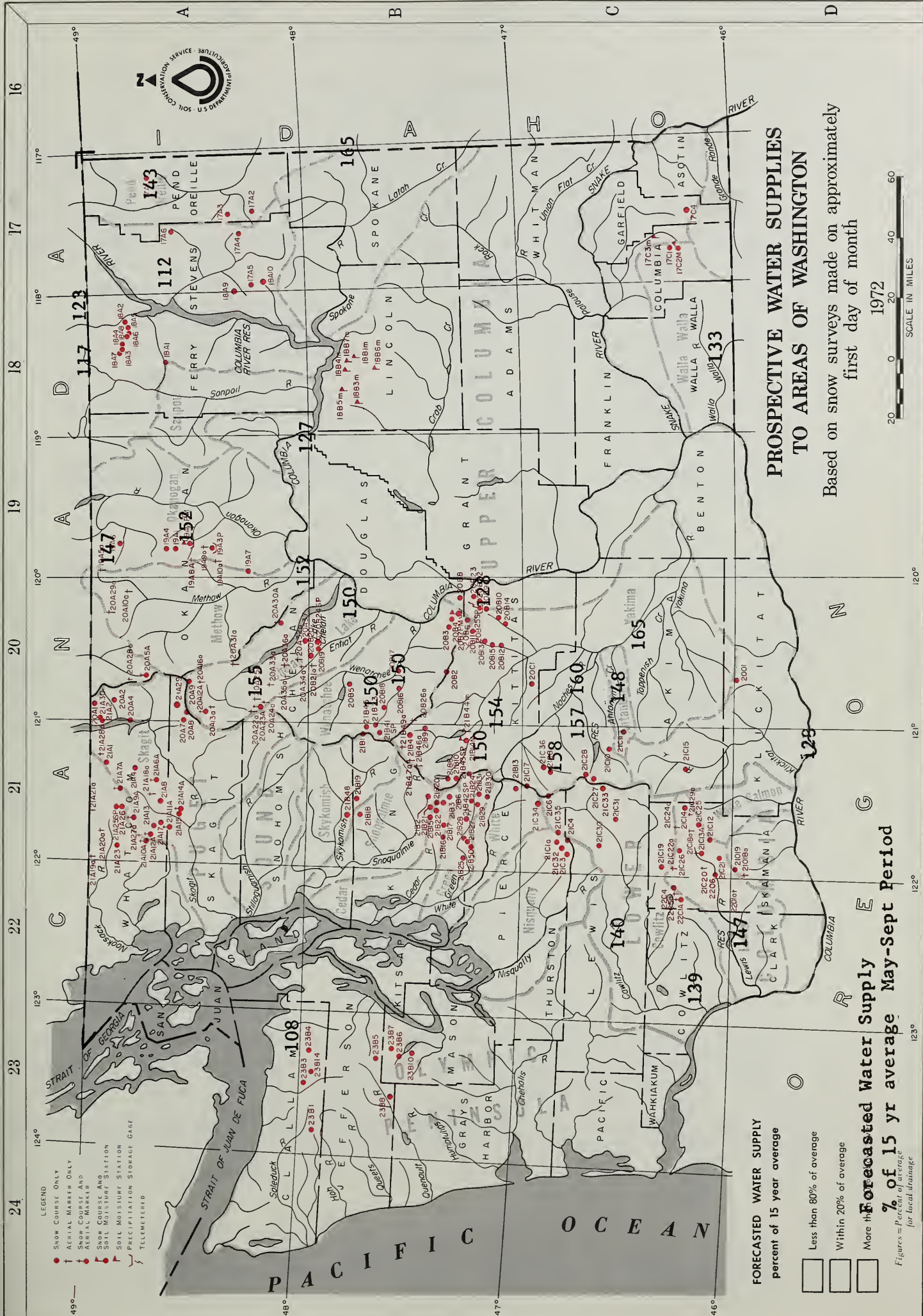
SOIL CONSERVATION SERVICE
360 U.S. COURTHOUSE
SPOKANE, WASHINGTON 99201



INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE				LOWER COLUMBIA DRAINAGE				PUGET SOUND DRAINAGE				OLYMPIC PENINSULA			
NAME	NUMBER	SEC.	TWP. RANGE ELEV.	NAME	NUMBER	SEC.	TWP. RANGE ELEV.	NAME	NUMBER	SEC.	TWP. RANGE ELEV.	NAME	NUMBER	SEC.	TWP. RANGE ELEV.
Pend Oreille River				Asotin Creek				Nisqually River				Dungeness River			
Boyer Mountain	17A2	7	31N 43E 5250	Spruce Springs	17C4	9	8N 40E 5700	Cayuse Pass	21C6	15	16N 10E 5300	Deer Park	2384	1	28N 5W 5200
Bunchgrass Meadow	17A1	24	37N 44E 5000	Mill Creek	17C3m	2	9N 35E 3370	Mosquito Meadows	21C19	33	10N 7E 4100	Marse Creek			
Winchester Creek	17A3	30	33N 43E 2970	Homestead	17C1	11	9N 40E 4030	Shanapachosh	21C32	28	15N 10E 2200	Cox Valley	23814	29	28N 6W
Kettle River				Martin Springs (Helmers SM)	17C2M	23	9N 40E 4400	Packwood Lake	21C31	21	13N 10E 2870	Elwha River	2383	36	29N 7W 4500
Boulder Road	18A2	36	39N 36E 1450	White Salmon River	21C12	35	7N 8E 4000	Potential Peak	21C33	23	15N 8E 4550	Skokomish River	2387	17	24N 5W 4200
Butte Creek	18A3	28	39N 35E 4070	Lewis River	21C22a	19	9N 8E 4800	Willane Creek	21C30	3	13N 8E 3250	Black and White	2386	16	24N 5W 4700
Cabin Creek	18A8	5	38N 36E 3170	81ue Lake	21C21	25	8N 7E 2200	Ghost Forest	21C4	23	15N 8E 4550	Four Stream	23810	1	23N 6W 3000
Cat Creek	18A4	26	39N 35E 3595	Bob's Trail	21C21	25	8N 7E 2200	Longlire	21C3	29	15N 8E 2760	Home Sweet Home	2388	28	25N 5W 5200
Shoat Caps Creek	18A5	3	38N 36E 2150	Calamity Ridge	2201a	8	5N 5E 2500	Paradise Park (New)	21C35	13	15N 8E 5050	Sundown Pass	2385	25	24N 7W 3900
Snow Caps Trail	18A6	5	38N 36E 2720	Council Pass	21C18a	24	9N 9E 4200	Stem Glade	21C1	13	15N 8E 5050	Deer Lake	2381	14	28N 9W 3900
Summit G. S.	18A7	20	39N 35E 4600												
Calville River				Klickitat River				White River							
Baird	17A6	19	36N 42E 3215	Satus Pass	2001	21	6N 17E 4030	Corral Pass	21813	30	18N 11E 6000				
Carlson	17A9	34	32N 38E 2885	West Fork Cabin	21C15	23	9N 12E 3000	White River Campground	21C34	4	16N 9E 6000				
Cheselah	17A3	11	32N 41E 4925	Cultus Creek	21C12	35	7N 8E 4000	White River	21813	30	18N 11E 6000				
Stranger Mountain	17A5	26	31N 38E 4990												
Togo	18A10	6	29N 38E 3370												
Sanpoil River				White Salmon River											
Sherman Creek Pass	18A1	19	36N 35E 5350	Lewis River	21C22a	19	9N 8E 4800								
Okanogan River				81ue Lake	21C21	25	8N 7E 2200								
Clark	19A8A	2	36N 23E 7000	Bob's Trail	21C21	25	8N 7E 2200								
Nuckamuck	19A9A	20	36N 24E 6750	Calamity Ridge	2201a	8	5N 5E 2500								
Mutton Creek No. 1	19A1	30	37N 24E 5700	Council Pass	21C18a	24	9N 9E 4200								
Mutton Creek No. 2	19A1	30	37N 24E 5700												
Payson Creek	20A38A	32	40N 18E 4300												
Rusty Creek	19A3P	18	35N 24E 4000												
Salmon Meadows	19A3PM	33	37N 24E 4500												
Starvation Mtn.	19A10A	15	35N 23E 6750												
Touts Coulee	19A6	30	39N 25E 2845												
Methow River				Klickitat River											
8illy Goat Pass	20A10A	10	38N 20E 6400	Satus Pass	2001	21	6N 17E 4030								
Dollar Hatch	20A39A	8	39N 20E 7000	West Fork Cabin	21C15	23	9N 12E 3000								
Harts Pass	20A5A	7	37N 18E 6500	Cultus Creek	21C12	35	7N 8E 4000								
Horseshoe Basin	19A5A	15	40N 23E 7000												
Loup Loop	19A7	36	34N 23E 4650												
Chelan Lake Basin				White Salmon River											
Cloudy Pass	20A22A	12	31N 15E 6500	Lewis River	21C22a	19	9N 8E 4800								
Greenwood Flat	20A25A	3	31N 16E 3540	81ue Lake	21C21	25	8N 7E 2200								
Little Meadows	20A24A	8	31N 16E 5275	Bob's Trail	21C21	25	8N 7E 2200								
Lyman Lake	20A23A	18	31N 16E 5900	Calamity Ridge	2201a	8	5N 5E 2500								
Park Creek Flat	20A13A	18	34N 16E 2220	Council Pass	21C18a	24	9N 9E 4200								
Park Creek Ridge	20A12A	3	34N 16E 4600												
Petersons	20A16A	7	34N 17E 3750												
Rainy Pass	20A9	21	35N 17E 4780												
Safety Harbor	20A35A	32	31N 20E 6300												
War Creek Pass	20A30A	34	33N 18E 6500												
Entiat River				Klickitat River											
Brief	20B19	34	28N 19E 1600	Satus Pass	2001	21	6N 17E 4030								
Entiat Meadows	20A33A	28	31N 17E 4800	West Fork Cabin	21C15	23	9N 12E 3000								
Entiat River Trail	20A34A	2	30N 17E 3150	Cultus Creek	21C12	35	7N 8E 4000								
Fox Camp	20A36A	17	30N 18E 6510												
Pope Ridge	20B20	22	29N 18E 4300												
Pope Ridge Snow Pillow	20B24SP	22	29N 18E 4300												
Pugh Ridge	20A32A	34	30N 18E 6400												
Shady Pass	20A37	30	29N 19E 6200												
Snow Brushy	20A35A	21	30N 17E 3850												
Tommy Creek	20B21A	10	28N 18E 5300												
Wenatchee River				Klickitat River											
8erne-Mill Creek	21B23	7	26N 15E 2925	Satus Pass	2001	21	6N 17E 4030								
8erne-Mill Creek (New)	21B48SP	13	26N 14E 3240	West Fork Cabin	21C15	23	9N 12E 3000								
8lewett Pass No. 2	20B2	35	22N 17E 4270	Cultus Creek	21C12	35	7N 8E 4000								
Chiwaukum G. S.	20B16	4	25N 17E 1810												
Lake Wenatchee	20B5	33	27N 17E 1970												
Leavenworth R. S.	20B17	4	26N 16E 2140												
Merritt	20B18	1	24N 17E 1127												
Stevens Pass	21B1	14	26N 13E 4070												
Stevens Pass Sand Shed	21B45	12	26N 19E 3700												
Trough #2	20B25SP	10	20N 20E 5310												

LEGEND
21A7 SNOW COURSE ONLY
21A7A SNOW COURSE AND SOIL MOISTURE STATION
21A7B SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7C SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7SP SNOW COURSE AND PRECIPITATION STORAGE GAGE
21A7SP SNOW COURSE AND PRECIPITATION STORAGE GAGE



PROSPECTIVE WATER SUPPLIES TO AREAS OF WASHINGTON

Based on snow surveys made on approximately
first day of month
1972

20

0

20

40

60

SCALE IN MILES

FORECASTED WATER SUPPLY
percent of 15 year average

Less than 80% of average

Within 20% of average

More than 20% of average

Forecasted Water Supply
% of 15 yr average May-Sept Period

Figures = Percent of average
for local drainage

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS AND PRECIPITATION STORAGE GAGES

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
UPPER COLUMBIA DRAINAGE					
Pend Oreille River					
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	41E	5000
Winchester Creek	17A3	30	33N	43E	2970
Kettle River					
Boulder Road	18A2	36	39N	36E	11450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A5	5	38N	36E	3170
Cook Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600
Colville River					
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4890
Togo	18A10	6	29N	38E	3370
Snoqualmie River					
Sherman Creek Pass	18A1	19	36N	35E	5350
Okanagan River					
Clark	19A8A	2	36N	23E	7000
Nucknuck	19A9A	20	36N	24E	6750
Nutton Creek No. 1	19A1	30	37N	24E	5700
Nutton Creek No. 2	19A1	19	37N	24E	6000
Paystaken	20A28A	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4500
Salmon Meadows	19A2PM	33	37N	24E	4500
Starvation Mtn.	19A10A	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845
Methow River					
Billy Goat Pass	20A10A	10	38N	20E	6400
Dollar Watch	20A29A	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5A	15	40N	23E	7000
Loup Loop	19A7	36	34N	23E	4650
Chelon Lake Bosin					
Cloudy Pass	20A22A	12	31N	15E	6500
Greenwood Flat	20A25A	3	31N	16E	3540
Little Meadows	20A24A	8	31N	16E	5275
Lyman Lake	20A23A	18	31N	16E	5900
Park Creek Flat	20A13A	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16A	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31A	34	33N	18E	6500
Entiat River					
Brief	20B19	34	28N	19E	1600
Entiat Meadows	20A33A	28	31N	17E	4800
Entiat River Trail	20A34A	2	29N	17E	3150
Fox Camp	20A36A	17	30N	18E	6510
Pope Ridge	20B20	22	29N	18E	4300
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	4300
Pugh Ridge	20A32A	34	30N	18E	6400
Shady Pass	20A37	20	29N	19E	6200
Snow Brushy	20A35A	21	30N	17E	3850
Tommy Creek	20B21A	10	28N	18E	5300
Wenatchee River					
Berne-Mill Creek	21B23	7	26N	15E	2925
Berne-Mill Creek (New)	21B4ISP	13	26N	14E	3240
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaikum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070
Stevens Pass Sand Shed	21B45	12	26N	19E	3700
Trough #2	20B25SP	10	20N	20E	5310
Lewis River (continued)					
Divide Meadow	21C29A	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5A	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100
Plains of Abraham	22C1A	35	9N	5E	4100
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20A	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24A	20	9N	9E	4200
Timbered Peak	21D18A	36	6N	6E	3000
Cowlitz River					
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Williams Creek	21C30	3	13N	8E	3250
Nisqually River					
Ghost Forest	21C4	23	15N	8E	4550
Longhair	21C3	29	15N	8E	2760
Paradise Park (New)	21C35	13	15N	8E	5050
Stem Glade	21C1	13	15N	8E	5050
White River					
Corral Pass	21B13	30	18N	11E	6000
White River Campground	21C34	4	16N	9E	
Green River					
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Cougar Mountain	21B42SP	21	21N	9E	3200
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Lynn Lake	21B50	21	20N	8E	4000
Sawmill Ridge	21B31	5	19N	11E	4700
Snowshoe Butte	21B43SP	14	20N	11E	5000
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100
Cedar River					
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400
Snoqualmie River					
Alpine Meadow	21B48	31	27N	9E	3500
Ollalie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B1B	26	26N	9E	1900
Skykomish River					
Lake Elizabeth	21B19	33	26N	10E	2900
Skagit River					
Beaver Creek Trail	21A4	35	39N	12E	2200
Brown Pass	21A1	9	39N	12E	3680
Brown Top	21A28A	26	40N	12E	6000
Devils Park	20A4	34	38N	16E	5900
Frezeout Creek Trail	20A1	14	40N	14E	3500
Frezeout Meadows	20A2	8	40N	16E	5000
Granite Creek	21A29	25	36N	16E	3500
Lake Hozomeen	21A2	19	40N	14E	2600
New Hozomeen Cabins	20A8	29	36N	14E	1900
New Hozomeen Lake	21A30	19	40N	14E	2800
Thunder Basin	20A7	15	35N	14E	4200
Baker River					
Baker Pass	21A27A	1	37N	7E	4900
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	35N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Komo Kulshan	21A17	31	37N	9E	800
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18A	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A18	25	37N	9E	4500
Nooksack River					
Bald Mountain	21A19A	7	40N	7E	4400
Canyon	21A20A	20	40N	8E	5100
Glacier Creek	21A23	9-10	38N	7E	3700
Panorama New	21A26	17	39N	9E	4300
Panorama Snow Pillow	21A25SP	17	39N	9E	4300
Twin Lakes	21A21A	16	40N	9E	5200
OLYMPIC PENINSULA					
Dungeness River					
Deer Park	23B4	1	28N	5W	5200
Morse Creek					
Cox Valley	23B14	29	28N	6W	
Elwha River					
Hurricane	23B3	36	29N	7W	4500
Skokomish River					
Black and White	23B7	17	24N	SW	4200
Black and White Lakes	23B6	16	24N	SW	4700
Four Stream	23B5	1	23N	6W	3000
Home Sweet Home	23B1	28	25N	SW	5200
Sundown Pass	23B8	25	24N	7W	3900
Soleduck River					
Deer Lake	23B1	14	28N	9W	3900
LEGEND					
NUMBERING SYSTEM					
SHOW COURSE ONLY					
21A7					
21A7A					
21A7B					
21A7C					
21A7D					
21A7E					
21A7F					
21A7G					
21A7H					
21A7I					
21A7J					
21A7K					
21A7L					
21A7M					
21A7N					
21A7O					
21A7P					
21A7Q					
21A7R					
21A7S					
21A7T					
21A7U					
21A7V					
21A7W					
21A7X					
21A7Y					
21A7Z					

WATER SUPPLY OUTLOOK

State of Washington
May 1, 1972

* * * * *
* The water supply outlook for the State of Washington and tribu- *
* tary basins continues to improve even greater than was reported *
* last month. The snowpack at the higher elevations has built to *
* near-record amounts and snowpacks at the middle elevations *
* which normally have started to melt out have increased or re- *
* mained constant from the April 1 measurements. Low-elevation *
* snow courses generally are bare or mostly void of snow but even *
* a few of these have well-above normal snowpacks. Last month we *
* reported record outflows. Things have stabilized during April *
* so that streamflow is very near normal. The above-normal flows *
* that did occur were generally the result of a continued reser- *
* voir evacuation. Precipitation continued above normal with one *
* exception and that being the central Washington area and in *
* this area there were exceptions with some stations reporting *
* 200% above normal rainfall. The overall result of above-normal *
* precipitation, cold temperatures, poor streamflow, is a gener- *
* al increase of all water supply forecasts, percentagewise, in *
* the state and from general tributary basins to the state. *
* * * * *

SNOWCOVER

There is only one basin in the State of Washington that is reporting a below-normal snowpack and this only 2% below. Generally the snowpack ranges up to 138% greater than normal which occurred on the Wenatchee watershed. Last month's record breaker, the Yakima, is running a close second. The peculiar thing about the snowpack this year is the lack of depletion in the mid-elevation area and where we normally have a decrease from April to May in the higher locations, this year with the result of the cold temperatures and above-normal precipitation many of these snow courses have increased in actual water equivalent. Even at the lower elevations where it always melts off the rate of depletion is zero or much below expected. As can be seen from the preceding map the only areas in the State of Washington with less than 120% of normal snowpack are the White and Green River watersheds.

RESERVOIRS

The reservoir story in an anticipated high-flow year has little meaning. Where normally the irrigation and power interests are attempting to fill the reservoirs to maintain high-head or full-volume, this year with the heavy flood control program that is being carried on by the Corps of Engineers all reservoirs of any consequence have been lowered to handle the anticipated above-normal flows. Reservoirs like Franklin D. Roosevelt are only 10% full at

this time. Certain small reservoirs that have no value for flood, such as those on the Okanogan Irrigation District land, are nearly full and even these have been evacuated in part in anticipation of large inflows. The slow-down in runoff during the month of April has assisted the reservoir operators in lowering their storage to an acceptable level for flood control purposes, i.e., the five Yakima reservoirs have reached their designed low elevation and excessive releases have been halted. There are no flood control areas in these reservoirs and they are being operated voluntarily by the irrigation interests for flood control purposes in the lower Yakima valley.

PRECIPITATION

Only the central Washington area, as reported by the National Weather Service, had below-normal precipitation. The range of rainfall, percentagewise, extends from 9% below normal to 57% above on the southwest slopes of the Cascades. The large area on the west side was generally 48% greater than normal and along the east slope 14% above normal. Along the east side of the state rainfall was 7% above normal and 19% above for the Columbia Basin in Canada.

STREAMFLOW

All streams in the state are flowing near average. Where reservoir evacuation has taken place this past month measured flow was well above normal, i.e., the Yakima at Parker's measured flow was 355% of average while the adjusted flow at Kiona, downstream, was only 195%. This same situation is true on the Okanogan and Skagit Rivers. The flow at The Dalles was 18% greater than normal adjusted for reservoir releases, while the measured flow was in the neighborhood of 60% greater. Forecasts of streamflow are essentially the same as released last month, percentagewise. There has been a general increase of forecasted amounts due to the increased precipitation and normal outflow but the situation has not been changed appreciably from that previously reported. Numerical forecasts can be found elsewhere in this report.

STREAMFLOW FORECASTS - MAY 1972

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. Streamflow figures for 1971 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1972	% 15-Yr. Avg.	Fore- cast Period	Seasonal Streamflow in Thousands of Acre-Feet			
				1971	1970	1969	15-Yr. Average 1953-67
<u>COLUMBIA BASIN</u>							
<u>Columbia River System</u>							
Columbia River at Birchbank <u>1/</u>	53570	123	May-Sep	45662	33048	43220	43577
	42800	123	May-Jul	36532	26426	35787	37692
	29700	122	May-Jun	26829	19447	27412	24252
Columbia River at Grand Coulee <u>1/</u>	80000	127	May-Sep	68309	50708	62413	62799
	66600	127	May-Jul	57392	42654	53383	52240
	52500	134	May-Jun	44498	33665	42309	39230
Columbia River bl. Rock Island Dam <u>1/</u>	88500	128	May-Sep	77437	54409	67013	68964
	74100	129	May-Jul	65569	46101	57853	57500
	57500	133	May-Jun	50708	36540	46189	43110
Columbia River at The Dalles OR <u>1/</u>	118500	128	May-Sep	108712	80458	90425	92456
	101000	131	May-Jul	92986	68366	78257	77330
	80600	135	May-Jun	74220	55159	63801	59690
<u>Pend Oreille River System</u>							
Pend Oreille River bl. Box Canyon	19800	143	May-Sep		13567	12406	13910
	17900	142	May-Jul		12506	11294	12669
	15100	142	May-Jun		10815	9272	10635
<u>Kettle River System</u>							
Kettle River nr. Laurier	1950	117	May-Sep	2020	1005	1747	1667
	1854	118	May-Jul	1956	974	1696	1571
	1644	118	May-Jun	1707	910	1556	1393

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Streamflow Forecasts - May 1972 (Cont.)

Basin, Stream and Station	Forecast Runoff 1972	% 15-Yr. Avg.	Fore- cast Period	Seasonal Streamflow in Thousands of Acre-Feet			15-Yr. Average 1953-67
				1971	1970	1969	
<u>Kettle River System (Cont.)</u>							
Colville River							
at Kettle Falls	110	112	May-Sep		63	141	98
	96	112	May-Jul		54	127	86
	85	112	May-Jun		49	111	76
<u>Spokane River System**</u>							
Spokane River							
at Post Falls ID <u>2/</u>	3500	165	May-Sep	2862		1952	2120
	3400	168	May-Jul			1862	2025
	3100	165	May-Jun			1749	1882
<u>Okanogan River System**</u>							
Similkameen River							
nr. Nighthawk	2080	147	May-Sep		816	1116	1431
	1950	147	May-Jul		775	1067	1325
	1610	146	May-Jun		705	969	1103
Okanogan River							
nr. Tonasket	2450	152	May-Sep		869	1296	1609
	2200	152	May-Jul		810	1201	1449
	1820	153	May-Jun		731	1079	1190
<u>Methow River System**</u>							
Methow River							
nr. Pateros	1470	152	May-Sep		593	942	969
	1370	153	May-Jul		557	896	895
	1160	155	May-Jun		503	830	748
<u>Chelan River System</u>							
Chelan River							
at Chelan <u>3/</u>	1720	150	May-Sep		848	1188	1148
	1520	152	May-Jul		759	1080	1001
	1140	152	May-Jun		626	943	752
Stehekin River							
at Stehekin	1280	155	May-Sep		641	868	827
	1080	155	May-Jul		553	760	695
	794	156	May-Jun		442	654	509
Entiat nr.							
Ardenvoir	274		May-Sep		154	246	--
	254		May-Jul		142	230	--
	208		May-Jun		123	208	--

* Forecasts made by J. Alden Wilson, Soil Conservation Service, Boise, Idaho.

** These forecasts are based in part upon base flow data especially prepared and furnished for this purpose by the U. S. Geological Survey.

2/ Observed flow corrected for storage in Couer d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Streamflow Forecasts - May 1972 (Cont.)

Basin, Stream and Station	Forecast Runoff 1972	% 15-Yr. Avg.	Fore- cast Period	Seasonal Streamflow in Thousands of Acre-Feet			15-Yr. Average 1953-67
				1971	1970	1969	
<u>Wenatchee River System</u>							
<u>Wenatchee River</u>							
at Plain	1770	150	May-Sep		930	1269	1183
	1590	151	May-Jul		852	1176	1053
	1210	151	May-Jun		715	1044	802
<u>Wenatchee River</u>							
at Peshastin	2409	150	May-Sep		1293	1706	1606
	2166	150	May-Jul		1195	1593	1444
	1673	151	May-Jun		1009	1422	1108
<u>Stemilt Basin</u>							
nr. Wenatchee	140*	--	May-Sep			145*	--
<u>Yakima River System</u>							
<u>Yakima River</u>							
nr. Martin <u>4/</u>	177	150	May-Sep	178	108	128	118
	162	151	May-Jul	165	100	116	107
	134	152	May-Jun	125	91	108	88
<u>Yakima River</u>							
at Cle Elum <u>5/</u>	1217	154	May-Sep		733	856	790
	1096	155	May-Jul		670	782	707
	905	155	May-Jun		590	717	584
<u>Yakima River</u>							
nr. Parker <u>6/</u>	2158	165	May-Sep		1218	1468	1308
	2132	165	May-Jul		1240	1483	1292
	1879	163	May-Jun		1188	1458	1153
<u>Kaches River</u>							
nr. Easton <u>7/</u>	160	157	May-Sep		93	111	102
	150	158	May-Jul		90	106	95
	128	158	May-Jun		83	99	81
<u>Cle Elum River</u>							
nr. Roslyn <u>8/</u>	639	154	May-Sep		386	422	415
	581	155	May-Jul		353	399	375
	470	155	May-Jun		301	366	303
<u>Bumping River</u>							
nr. Nile <u>9/</u>	209	157	May-Sep		119	133	133
	191	158	May-Jul		112	125	121
	153	158	May-Jun		97	116	97

* Thousands of Miners' inches

4/ Observed flow corrected for storage in Lake Keechelus.5/ Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes and diversion by Kittitas Canal.6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.7/ Observed flow corrected for storage in Lake Kachess.8/ Observed flow corrected for storage in Lake Cle Elum.9/ Observed flow corrected for storage in Bumping Lake.

Streamflow Forecasts - May 1972 (Cont.)

Basin, Stream and Station	Forecast Runoff 1972	% 15-Yr. Avg.	Fore- cast Period	Seasonal Streamflow in Thousands of Acre-Feet			
				1971	1970	1969	15-Yr. Average 1953-67
<u>Yakima River System (Cont.)</u>							
American River	177	158	May-Sep		119	121	112
nr. Nile	164	159	May-Jul		111	114	103
	132	159	May-Jun		97	104	83
Tieton River							
at Tieton Dam <u>10/</u>	335	155	May-Sep		220	233	216
	285	157	May-Jul		183	203	181
	218	158	May-Jun		147	180	93
Naches River							
nr. Naches <u>11/</u>	1197	160	May-Sep		748	820	748
	1082	162	May-Jul		686	752	668
	892	163	May-Jun		601	683	547
Ahtanum Creeks							
nr. Tampico <u>12/</u>	59	148	May-Sep		37	44	40
	53	151	May-Jul		33	40	35
	46	153	May-Jun		29	37	30
<u>Lower Columbia River System</u>							
Mill Creek							
nr. Walla Walla	24	133	May-Sep		19	19	18
	19	136	May-Jul		15	15	14
	17	142	May-Jun		13	13	12
Lewis River							
at Ariel <u>13/</u>	1410	147	May-Sep	1397	631	1164	956
	1200	151	May-Jul	1184	514	982	796
	1000	152	May-Jun	924	440	854	657
Cowlitz bl.							
Mayfield Dam	2352	140	May-Sep		1246	1752	1680
	2012	141	May-Jul		1056	1525	1427
	1596	141	May-Jun		876	1324	1132
Cowlitz River							
at Castle Rock <u>14/</u>	2940	139	May-Sep		1584	2290	2125
	2550	142	May-Jul		1324	1966	1794
	2020	142	May-Jun		1102	1684	1426

OLYMPIC PENINSULADungeness River System

Dungeness River							
nr. Sequim	166	108	May-Sep		122	172	153
	134	110	May-Jul		101	144	122
	98	114	May-Jun		75	116	86

10/ Observed flow corrected for storage in Rimrock Lake.11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.12/ Observed flow of North and South Forks (combined).13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.14/ Observed flow corrected for storage in Mayfield Reservoir.

COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about May 1, 1972, as per cent of the same date in 1971 and 1970 and average of record.

Tributary Basin	No. of Courses Average	Years of Record	1972 Snow Water Expressed as per cent of		
			1971	1970	1953-67
<u>UPPER COLUMBIA BASIN</u>					
Pend Oreille	13 - 16	8 - 35	117	126	147*
Kettle	9	9 - 34	133	157	178*
Spokane	5 - 8	8 - 35	140	157	159*
Okanogan	23 - 33	7 - 37	145	185	187*
Methow	4 - 5	11 - 30	105	154	184*
Chelan	2	11 - 40	124	206	163*
Entiat	7 - 8	5 - 7	108	198	167*
Wenatchee	4 - 9	11 - 40	117	214	238*
Yakima	10 - 13	6 - 52	98	153	214*
<u>LOWER COLUMBIA</u>					
Mill Creek	1	23	127	100	195
White Salmon	2	16	92	180	161*
Lewis	13 - 16	11 - 28	76	379	182*
Cowlitz	2 - 4	9 - 32	106	156	173*
<u>PUGET SOUND</u>					
White	1	16	60	96	98*
Green	1 - 3	11 - 26	86	134	105*
Snoqualmie	1	16	93	160	170*
Skykomish	2	14 - 26	110	160	173*
Skagit	9 - 13	1 - 28	92	187	190*
Baker	7 - 10	3 - 14	93	223	133*
Nooksack	1	3	102	159	--
<u>OLYMPIC PENINSULA</u>					
Skokomish	3	1	--	169	--
Elwha	1	19	78	192	123*
Dungeness	1	19	90	166	136*

* Records of less than 15 years used on computation of averages

RESERVOIR STORAGE - 1000 Acre Feet

BASIN or STREAM	RESERVOIR	USABLE ^{1/}	1972	Measured May		Normal*
		CAPACITY		1971	1970	
<u>COLUMBIA</u>						
Spokane	Coeur d'Alene Lake	225.1	208.7	281.3	149.5	299.9
Columbia	Franklin D. Roosevelt Lake	5232.0	497.3	743.6	538.5	2444.9
Columbia	Banks Lake	761.8	213.2	543.1	648.0	409.7
Okanogan	Conconully Reservoir	13.0	10.6	7.4	8.1	7.6
Okanogan	Salmon Lake	10.5	9.5	3.0	7.6	8.7
Chelan	Lake Chelan	676.1	205.1	192.6	74.3	210.0
<u>YAKIMA</u>						
Yakima	Keechelus Lake	157.8	106.1	98.4	99.3	120.6
Kachess	Kachess Lake	239.0	161.2	166.2	196.2	202.4
Cle Elum	Lake Cle Elum	436.9	171.6	238.0	216.9	323.2
Bumping	Bumping Lake	33.7	6.4	3.8	7.7	20.1
Tieton	Rimrock Lake	198.0	64.5	112.2	119.5	154.1
<u>PUGET SOUND</u>						
Skagit	Ross Reservoir	1202.9	768.7	775.9	541.0	695.4
Skagit	Diablo Reservoir	90.6	88.4	88.4	86.4	85.2
Skagit	Gorge Reservoir	9.8	8.4	8.5	8.0	--

^{1/} Based on Active Storage

* 15-year average 1953-67

SOIL MOISTURE - MAY

Drainage Basin and Station	Number	Elev.	Profile Depth	(Inches): Total : Capacity:	Soil Moisture Content (Inches) as of May 1		
					1972	1971	1970
<u>CRAB CREEK</u>							
Jack Woods	18B3m	2600	48	13.6	9.4	10.2	10.4
Krause	18B4m	2440	48	13.6	8.9	9.7	9.2
Sheffels	18B5m	2360	48	13.6	9.5	9.5	8.7
Sherman	18B7m	2440	48	13.6	8.7	8.8	8.9
Wheatridge	18B6m	2200	48	13.6	10.0	10.4	9.6
<u>OKANOGAN</u>							
Salmon Meadows	19A2M	4500	48	5.4	3.8	3.8	3.7
Trout Creek	3-M	3600	48	7.3	5.6*	4.0	--
<u>YAKIMA</u>							
Domery Flat	21B20m	2200	48	6.9	4.8	4.8	5.6
Lake Cle Elum	21B14M	2200	48	12.8	9.1	9.2	9.2
<u>WALLA WALLA</u>							
Couse	17C3m	3650	48	11.1	10.5	10.0	10.4
Helmrs	17C2M	4400	48	12.0	10.7	10.2	10.5
<u>WENATCHEE</u>							
Upper Wheeler	20B7M	4400	48	12.7	12.2	11.4	6.3
* April 1 report							

FALL SOIL MOISTURE

Drainage and Station	Number	Elev.	Profile Depth	(Inches):	Soil Moisture Content		
				Total : Capacity:	(Inches) as of Oct. 1		
					1971	1970	1969
<u>CRAB CREEK</u>							
Jack Woods	18B3m	2750	48	13.6	5.3	7.0	7.5
Krause	18B4m	2420	48	13.6	5.0	4.4	5.9
Sheffels	18B5m	2380	48	13.6	5.3	4.4	4.5
Sherman	18B7m	2440	48	13.6	4.0	3.8	4.2
Wheatridge	18B6m	2290	48	13.6	5.5	7.8	5.4
<u>OKANOGAN</u>							
Salmon Meadows	19A2M	4500	48	5.4	2.7	1.7	2.7
Trout Creek	3-M	3600	48	7.3	3.3	3.4*	3.8*
<u>YAKIMA</u>							
Domery Flat	21B20m	2200	48	6.9	2.1	2.4	--
Lake Cle Elum	21B14M	2200	48	12.8	7.1	7.6	--
<u>WALLA WALLA</u>							
Couse	17C3m	3650	48	11.1	6.2	5.9	6.1
Helmrs	17C2M	4400	48	12.0	8.2	7.3	7.1
<u>WENATCHEE</u>							
Upper Wheeler	20B7M	4400	48	12.7	6.5	5.1	9.8

* Nov 1 measurement

PRECIPITATION ^{1/}

Division Averages and Departures

Drainage Division	FALL Sept-Oct 1971 ^{2/}		WINTER Nov. '71 - Mar. '72 ^{2/}		SPRING April '72 ^{2/}	
	Observed - Departure		Observed - Departure		Observed-Departure	
Columbia in Canada	4.45	+ 0.56	18.14	+ 5.45	1.65	+ 0.27
Pend Oreille - Spokane	4.63	+ 0.48	22.16	+ 3.91	2.51	+ 0.18
Northeastern Washington	3.16	+ 0.91	9.92	- 1.17	1.61	+ 0.18
Southeastern Washington	3.73	+ 1.08	15.47	+ 3.06	1.92	+ 0.04
Central Washington	4.15	- 0.29	39.29	+12.16	2.02	- 0.19
North Central Washington	1.99	+ 0.58	10.09	+ 3.75	1.05	+ 0.28
Northwest Slope Cascades	11.60	- 0.07	66.90	+14.76	8.28	+ 2.37
Southwest Slope Cascades	9.33	+ 1.61	54.96	+14.09	6.78	+ 2.45

Northeastern Washington	- Lower Spokane, Colville, Sanpoil and lower Kettle drainages,
Southeastern Washington	- Touchet, Tucannon and Palouse drainages
Dentral Washington	- Yakima, Wenatchee and Chelan drainages.
North Central Washington	- Methow and Okanogan drainages.
Northwest Slope Cascades	- Puget Sound drainages.
Southwest Slope Cascades	- Lower Columbia drainages.

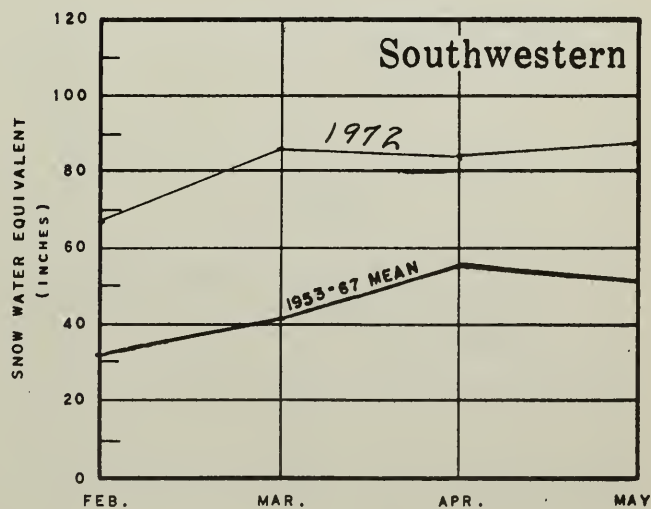
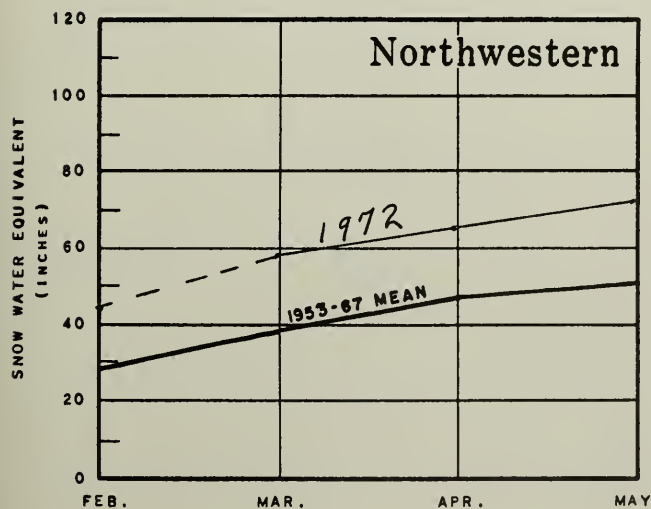
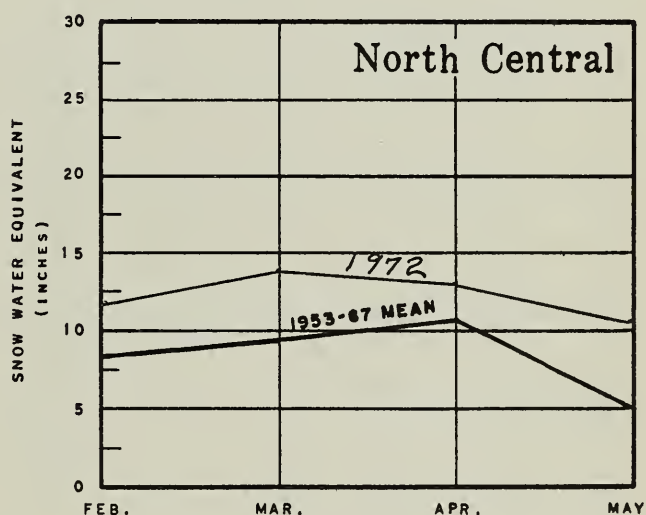
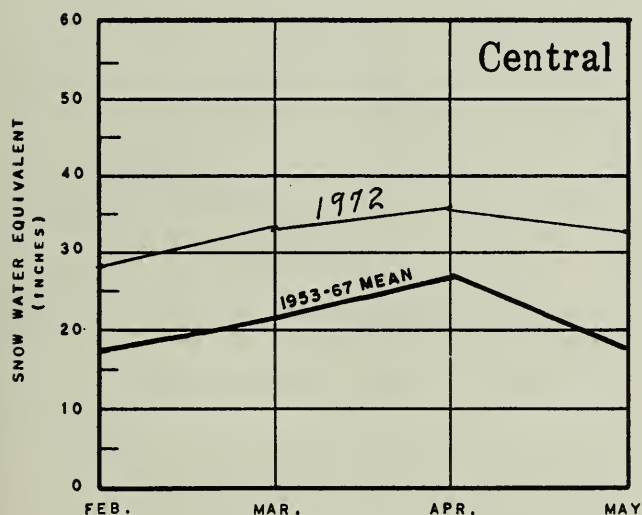
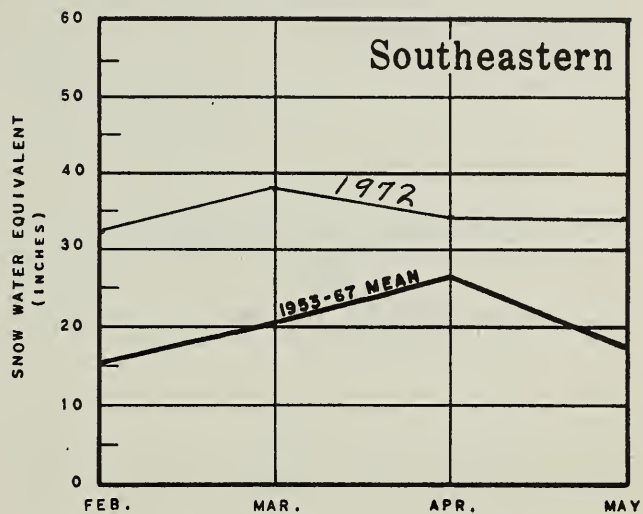
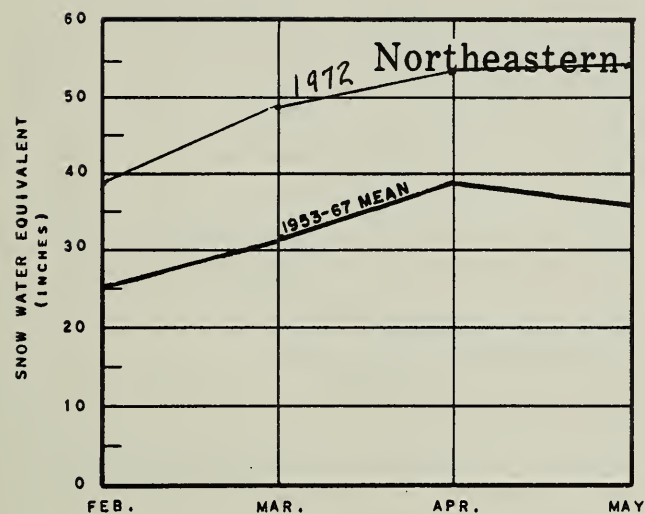
^{1/} - Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and National Weather Service

^{2/} - Departure from 15-year (1953-67) drainage division average.

WASHINGTON SNOW COVER

1972

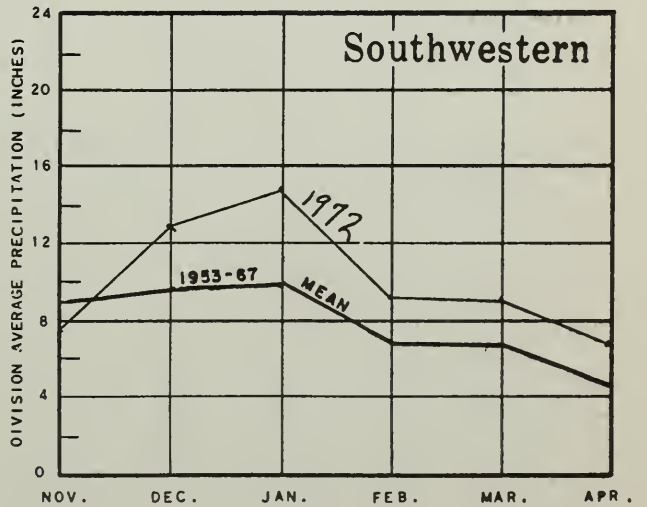
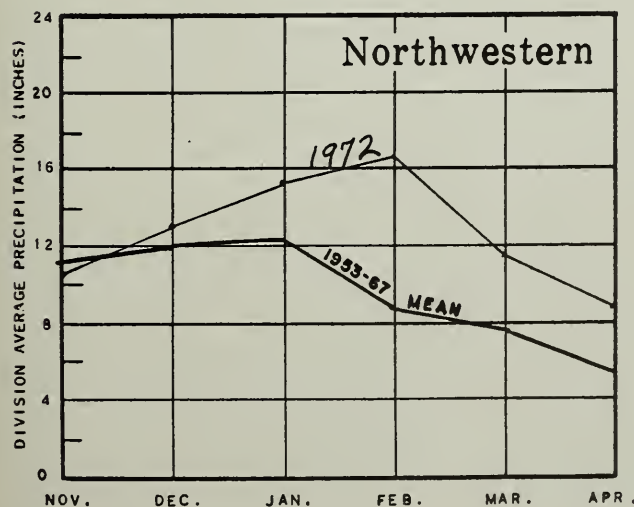
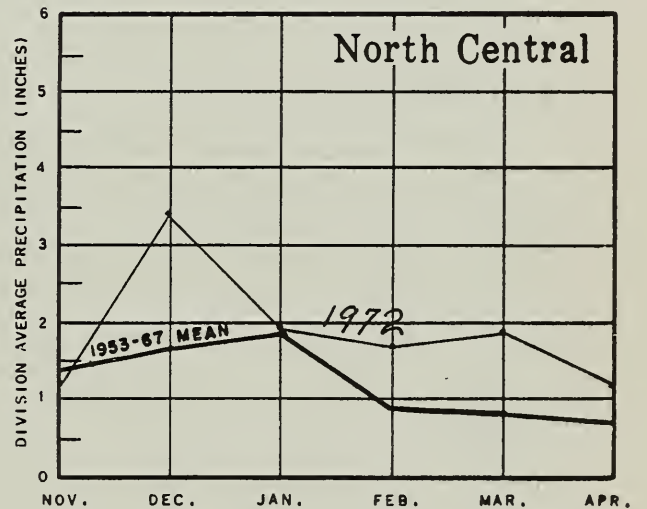
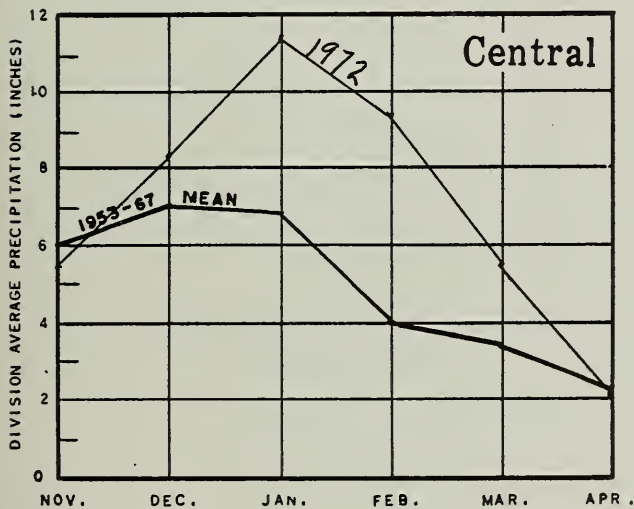
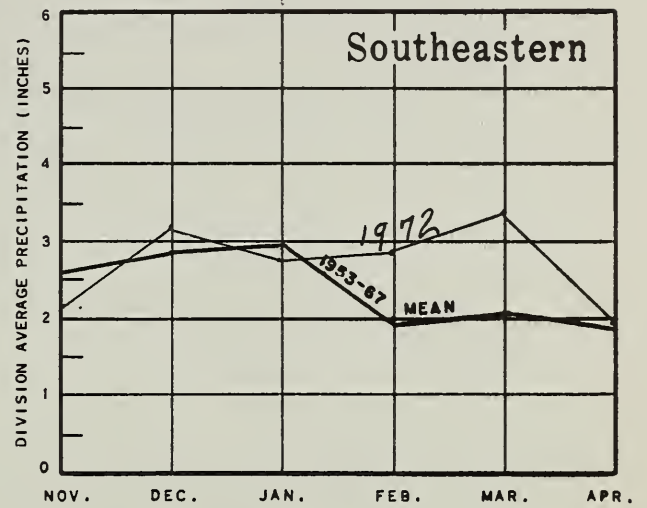
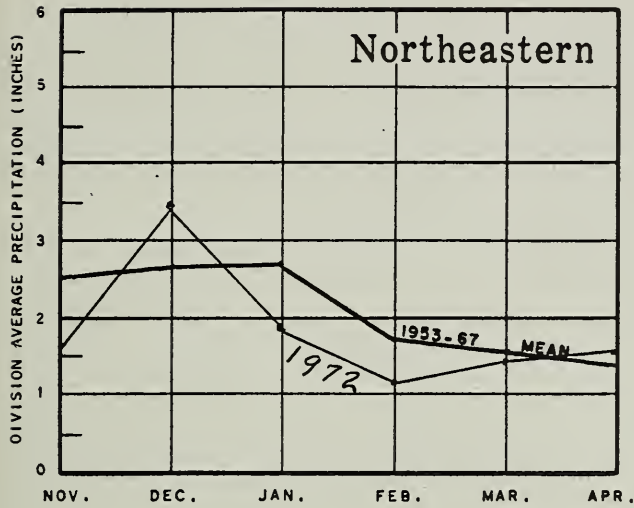
DRAINAGE AREAS



WASHINGTON VALLEY PRECIPITATION

1971-1972

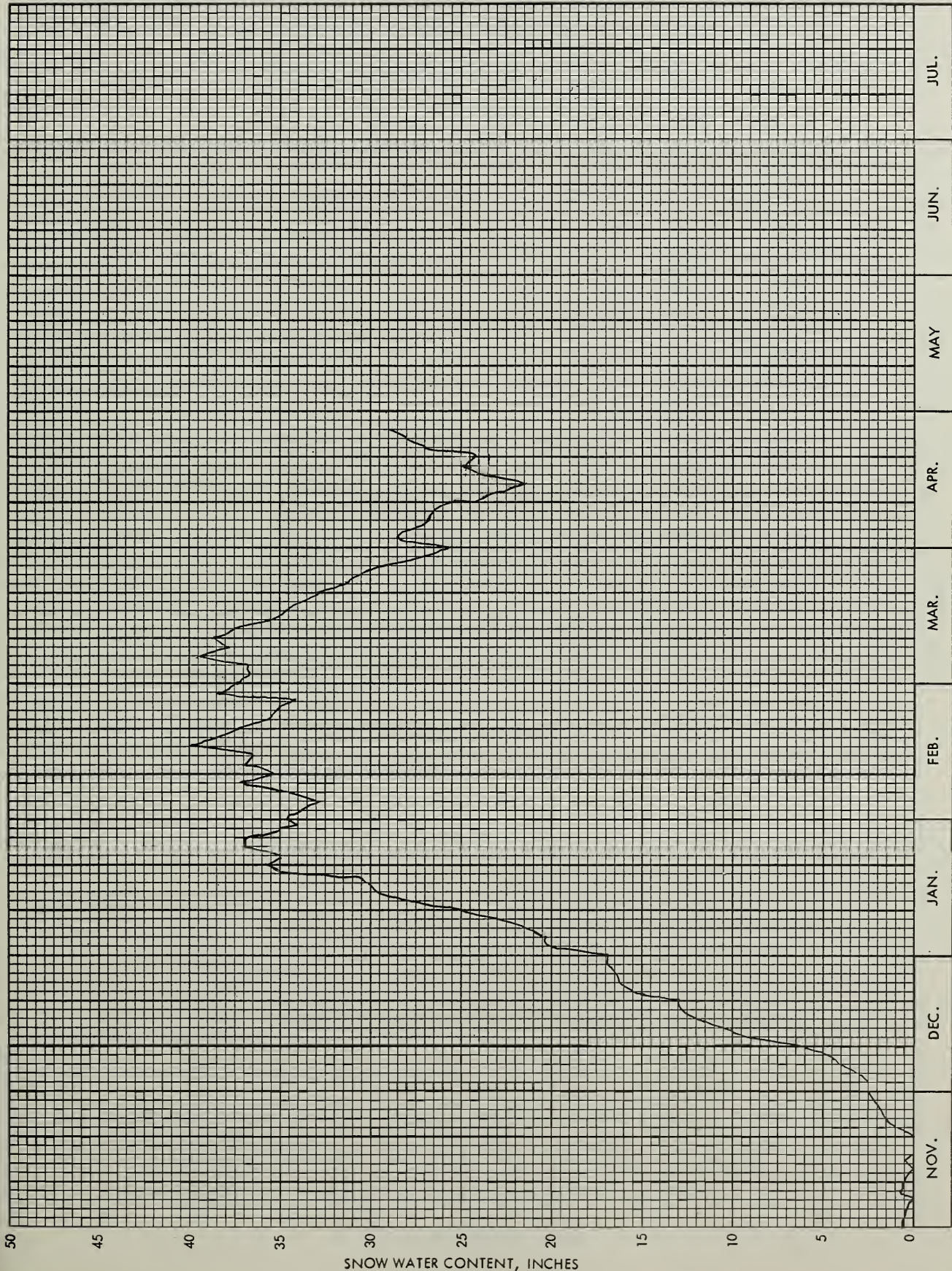
DRAINAGE AREAS



Cougar Mountain - FS
SNOW PILLOW DATA

AS OF May 1, 1972

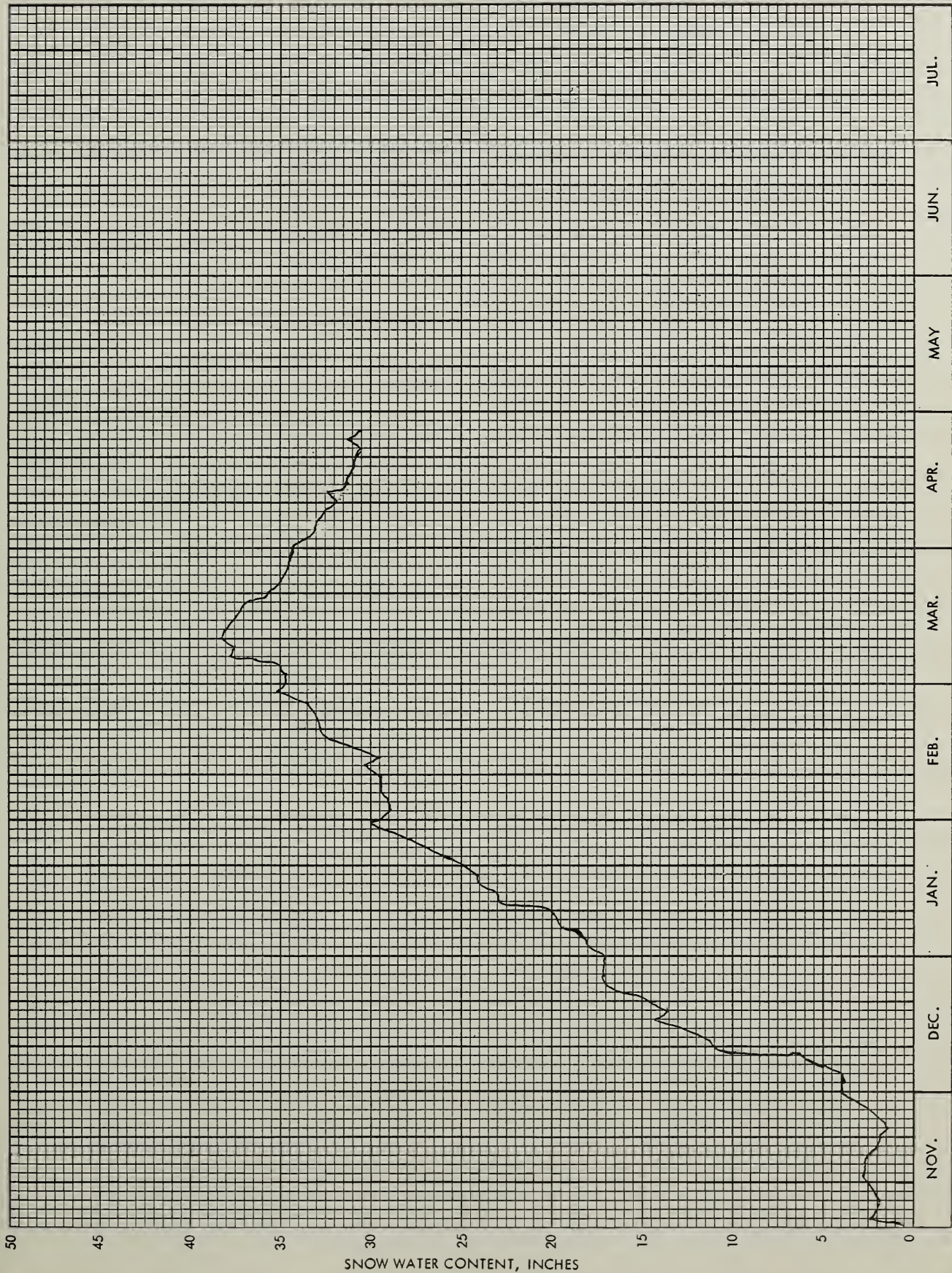
Sec. 21 T. 21N R. 9E No. 21342SP Drainage: Green River
Lat. 47° 17' Long. 121° 40' Elev. 3200'



Berne-Mill Creek
SNOW PILLOW DATA

AS OF May 1, 1972

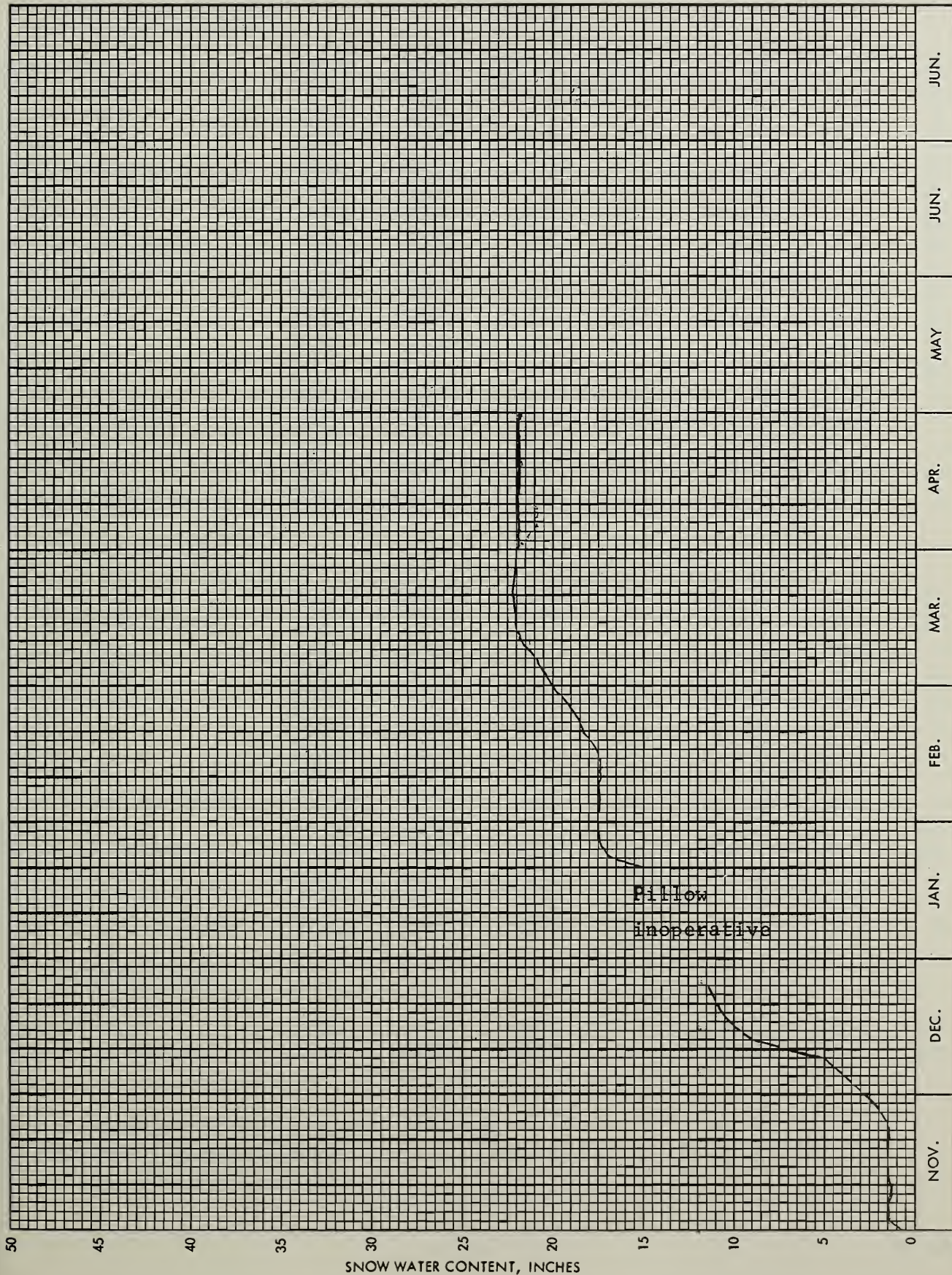
Sec. 13 T. 26N R. 14E No. 21B41SP Drainage: Wenatchee R.
Lat. 47° 45' Long. 121° 42' Elev. 3240'



Trough No. 2
SNOW PILLOW DATA

AS OF May 1, 1972

Sec. 10 T. 20N R. 20E No. 20B25SP Drainage: Wenatchee
Lat. 47° 14' Long. 120° 19' Elev. 5310'



APPENDIX 1
SNOW DATA APRIL 1 to MAY 1, 1972

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	No.	Elevation				Last Year	Average †

U P P E R C O L U M B I A D R A I N A G E

PEND OREILLE RIVER

Baree Creek	15B11	5500	5/1	140	69.3	59.4	48.4
Baree Midway	15B16	4600	5/1	101	49.7	38.5	35.8
Baree Trail	15B15	3800	5/1	4	1.8	0.0	1.0
Benton Meadow	16A2	2344	4/30	0	0.0	0.0	0.0
Benton Spring	16A3	4900	4/30	40	19.2	16.7	17.1
Boyer Mountain	17A2	5250	4/27	61	30.0	30.4	25.2
Brush Creek	14A4	5000	4/25	30	13.7	10.0	10.8
Bunchgrass Meadow	17A1	5000	4/26	74	36.0	29.1	30.4
Heart Lake Trail	14C10	4800	4/28	78	38.7	29.5	17.2
Hoodo Basin	15C10	6000	4/28	173	88.0	68.8	55.8
Hoodo Creek	15C1	6200	4/28	168	85.9	66.1	52.0
Lookout	15B2	5250	4/17	124	57.1	48.7	--
			5/1	107	54.0	44.5	36.7
Nelson	Canada	3050	4/27	26	11.4	11.6	7.0**
Schweitzer Bowl	16A6	4500	4/28	66	32.7	34.0	--
Schweitzer Ridge	16A5	6100	4/28	125	57.8	58.5	--
Smith Creek	16A1	4800	5/2	118	59.8	54.9	49.4
Winchester Creek	17A3	2970	4/27	0	0.0	6.9	0.5*

KETTLE RIVER

Barnes Creek	Canada	5500	4/27	70	29.2	23.7	21.1**
Big White Mountain	Canada	5500	4/27	70	26.1	26.1	21.2**
Boulder Road	18A2	1450	4/25	0	0.0	0.0	--
Butte Creek	18A3	4070	4/25	14	4.7	8.3	5.5*
Cabin Creek	18A8	3170	4/25	6	2.0	6.3	1.4*
Carmi	Canada	4100	4/27	15	6.8	1.9	1.5**
Farron	Canada	4000	4/26	28	13.7	12.7	7.9**
Goat Creek	18A4	3595	4/25	0	0.0	0.0	--
Lower Trapping Creek	Canada	3050	4/27	0	0.0	0.0	--
#Monashee Pass	Canada	4500	4/27	46	19.7	14.3	13.2**
Old Glory Mountain	Canada	7000	4/30	99	40.1	37.1	30.6**
Snow Caps Creek	18A5	2150	4/25	0	0.0	0.0	--
Snow Caps Trail	18A6	2720	4/25	0	0.0	0.0	--
Upper Trapping Creek	Canada	5500	4/27	28	11.7	6.8	5.7**

SPOKANE RIVER

Copper Ridge	16B2	4800	4/27	77	40.3	26.2	27.8
Forty-nine Meadows	15B3	5000	4/28	96	43.5	45.8	30.6*

- # Not located directly on this drainage
* Adjusted 1953-67 average
** Average for years of record

APPENDIX 2

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	No.	Elevation				Last Year	Average †

SPOKANE RIVER (Cont.)

Fourth of July Summit	16B3	3100	5/1	0	0.0	0.0	--
Granite Peak	15B13A	6000	4/28	190	89.3	63.8	--
#Lookout	15B2	5250	4/17	124	57.1	48.7	--
			5/1	107	54.0	44.5	36.7
Lost Lake	15B14A	6000	4/28	224	105.3	82.0	62.7*
Lower Sands Creek	16B1	3400	4/27	61	28.0	20.6	14.6
Medicine Ridge	15B4A	6150	4/28	155	77.5	63.0	--
#Mosquito Ridge SP	16A4A	5110	4/30		47.0		
Outlaw Creek	15B12A	3750	4/28	0	0.0	0.0	8.0*
Sherwin	16C1	3200	4/28	40	18.4	8.2	--

OKANOGAN RIVER

Aberdeen Lake	Canada	4300	5/1	11	4.5	0.0	1.7**
Blackwall Peak	Canada	6250	4/28	136	58.0	54.2	38.1**
Bouleau Creek	Canada	5000	4/30	40	14.7	11.4	8.4**
Bouleau Lake	Canada	4500	4/30	55	18.2	16.4	--
Brenda Mine	Canada	4800	4/27	49	20.7	11.0	9.2**
Brookmere	Canada	3200	4/26	44	15.7	13.8	5.6**
Carrs Landing Lower	Canada	2250	4/28	0	0.0	0.0	--
Carrs Landing Upper	Canada	3200	4/28	0	0.0	0.0	--
Clark +	19A8a	7000	5/1	105	48.3	28.3	24.4*
Enderby	Canada	6250	4/28	140	55.0	50.0	41.4**
#Freezeout Meadows Alt.	20A2	5000	4/27	88	39.2	61.1	31.6
Hamilton Hill	Canada	4900	4/30	70	33.0	17.7	12.2**
#Harts Pass	20A5A	6500	4/26	161	72.7	65.8	49.8
Isintok Lake	Canada	5510	4/30	46	17.1	7.7	6.2**
Lost Horse Mountain	Canada	6300	4/27	59	21.8	14.6	10.0**
#Loup Loup	19A7	4650	4/26	14	6.2	10.4	--
Lower Esperon Creek	Canada	4270	5/1	36	14.6	15.0	11.2**
McCulloch	Canada	4200	4/24	17	6.1	2.7	2.8**
Middle Esperon Creek	Canada	4580	5/1	45	18.9	21.7	14.2**
Missezula Mountain	Canada	5100	Not Measured			--	4.5**
Mission Creek	Canada	6000	4/27	76	30.0	24.9	22.0**
Monashee Pass	Canada	4500	4/27	46	19.7	14.3	13.2**
Mount Kobau	Canada	5950	4/28	55	17.6	17.4	14.1**
Muckamuck +	19A9a	6390	5/1	58	21.2	23.0	--
Mutton Creek No. 1	19A1	5700	4/27	48	23.0	17.1	10.0
Mutton Creek No. 2	19A4	6000	4/27	57	24.0	20.7	15.1
New Copper Mountain	Canada	4300	4/29	12	6.0	1.9	--
New Penticton Res.	Canada	6200	4/28	44	15.0	--	--

Not located directly on this drainage

* Adjusted 1953-67 average

** Average for years of record

+ Snow water equivalent estimated from aerial stadia observation

APPENDIX 3

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	No.	Elevation				Last Year	Average †

OKANOGAN RIVER (Cont.)

Nickel Plate Mtn.	Canada	6200	4/27	51	17.0	10.1	7.5**
Postill Lake	Canada	4500	4/28	30	10.6	8.2	6.7**
#Quartette Lake	Canada	4000	4/29	55	23.6	--	--
Rusty Creek	19A3	4000	4/27	0	0.0	0.0	1.3*
Salmon Meadows	19A2	4500	4/27	22	10.7	10.0	5.0
Silver Star Mtn.	Canada	6050	4/22	103	44.2	33.5	27.5**
Starvation Mtn.†	19A10a	6750	5/1	78	21.2	27.1	25.1*
Summerland Res.	Canada	4200	4/29	35	14.5	8.6	5.9**
Touts Coulee	19A6	2845	5/1	0	0.0	--	--
Trout Creek	Canada	4700	4/25	41	15.2	7.1	4.9**
Upper Esperon Creek	Canada	5290	5/1	67	24.1	25.1	21.9**
Vaseux Creek	Canada	4050	4/30	22	7.0	1.6	--
White Rocks Mtn.	Canada	6000	4/28	76	35.9	30.6	--

METHOW RIVER

Harts Pass	20A5A	6500	4/26	161	72.7	65.8	49.8
Loup Loup	19A7	4650	4/26	14	6.2	10.4	--
#Mutton Creek No. 1	19A1	5700	4/27	48	23.0	17.1	10.0
#Mutton Creek No. 2	19A4	6000	4/27	57	24.0	20.7	15.1
#Rusty Creek	19A3	4000	4/27	0	0.0	0.0	1.3*
#Salmon Meadows	19A2	4500	4/27	22	10.7	10.0	5.0

CHELAN LAKE BASIN

Rainy Pass	20A9	4780	4/26	143	69.0	58.4	43.9
Safety Harbor	20A30A	6300	4/24	118	51.1	39.5	30.2*

ENTIAT RIVER

Brief	20B19	1600	4/28	0	0.0	0.0	0.0*
Entiat Meadows +	20A33a	4800	5/1	120	61.2	55.5	37.0*
Entiat River Trail +	20A34a	3150	5/1	28	14.4	22.3	10.7*
Fox Camp +	20A36a	6510	5/1	182	92.8	82.8	57.6*
Pope Ridge	20B20	4300	4/27	31	16.2	18.5	8.3*
Pugh Ridge +	20A32a	6400	5/1	125	63.8	48.2	34.7*
Shady Pass	20A37	5000	4/28	107	54.2	27.4	--
Snow Brushy +	20A35a	3850	5/1	101	51.5	46.9	27.5*
Tommy Creek +	20B21a	5300	5/1	60	30.6	31.0	212.*

Not located directly on this drainage

* Adjusted 1953-67 average

** Average for years of record

+ Snow water equivalent estimated from aerial stadia observation

APPENDIX 4

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	NO.	Elevation				Last Year	Average †
<u>WENATCHEE RIVER</u>							
Berne-Mill Creek	21B23	2925	4/26	85	43.5	41.7	18.2*
Berne-Mill Creek New	21B41SP	3240	4/26	52	28.2	34.2	--
Blewett Pass No. 2	20B2	4270	4/13	60	31.8	22.5	12.1*
			4/28	50	27.5	19.7	8.9
Chiwaukum G. S.	20B16	1810	4/26	24	11.6	8.8	--
#Fish Lake	21B4	3371	4/27	101	56.1	55.1	24.1*
Lake Wenatchee	20B5	1970	4/27	29	14.4	9.8	--
Leavenworth R. S.	20B17	1127	4/24	0	0.0	0.0	--
Merritt	20B18	2140	4/26	44	19.8	15.2	--
Stevens Pass	21B1	4070	4/14	165	78.1	74.2	55.7*
			4/26	171	92.8	77.8	53.5
Stevens Pass S. Shed	21B45	3700	4/14	106	52.5	53.0	--
			4/26	110	55.3	54.9	--

QUILCHUCK CREEK

Beehive Springs	20B3	4400	4/28	8	4.3	4.8	--
Scout-A-Vista	20B4	3400	4/28	0	0.0	2.0	--

STEMILT CREEK

Jump-Off	20B8	4450	4/26	15	8.0	7.4	--
Stemilt Slide	20B6	5000	4/27	26	14.0	15.3	4.0
Upper Wheeler	20B7	4400	4/27	0	0.0	3.7	--

COLOCKUM CREEK

Colockum Creek Upper	20B22	5300	4/26	31	17.3	16.0	--
Colockum Creek Lower	20B23	4300	4/26	4	1.8	7.0	--

YAKIMA RIVER

#Ahtanum R. S.	21C11	3100	5/1	0	0.0	0.0	0.0
Big Boulder Creek	21B9	3200	4/27	46	23.6	26.4	5.0*
#Blewett Pass No. 2	20B2	4270	4/13	60	31.8	22.5	12.1*
			4/28	50	27.5	19.7	8.9
Bumping Lake	21C8	3450	4/14	45	19.5	28.2	13.3*
			5/1	32	16.2	20.9	9.3
Bumping Lake New	21C36	3400	4/14	60	26.9	33.8	--
			5/1	47	23.6	27.0	--
#Cayuse Pass	21C6	5300	4/26	288	139.1	--	--

Not located directly on this drainage

* Adjusted 1953-67 average

APPENDIX 5

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	No.	Elevation				Last Year	Average †
<u>YAKIMA RIVER (Cont.)</u>							
Lemah Creek +	21B47a	3327	4/26	119	64.3	57.8	--
Fish Lake	21B4	3371	4/27	101	56.1	55.1	24.1*
Joe Lake +	21B46a	4624	Marker buried				
Lake Cle Elum	21B14M	2200	4/18	24	10.9	0.0	--
			5/1	0	0.0	--	--
Morse Lake	21C17	5400	4/27	183	48.0	102.6	62.4*
#Olallie Meadows	21B2	3625	4/13	165	79.2	80.0	51.0*
			4/27	163	81.8	88.0	48.1*
#Satus Pass	20D1	4030	4/28	0	0.0	13.0	--
#Stampede Pass	21B10	3000	4/15	145	43.8	70.6	48.6
			5/1	157	48.1	59.8	46.0
Tunnel Avenue	21B8	2450	4/15	76	35.3	35.3	21.5*
			4/30	67	32.4	32.3	17.4
Van Epps Pass +	20B26a	5925	Marker buried			80.4	--
Waptus Lake +	21B49a	3024	4/26	122	65.8	59.2	--
White Pass (E. Side)	21C28	4500	4/17	112	50.9	41.6	27.8*
			5/2	105	51.9	40.1	26.2*
White Pass (L. Lake)	21C27	4500	Not Measured			47.2	29.6*
			4/26	114	55.0	--	28.0

AHTANUM CREEK

Ahtanum R. S.	21C11	3100	5/1	0	0.0	0.0	0.0*
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LOWER COLUMBIAASOTIN CREEK

Spruce Springs	17C4	5700	4/27	71	35.3	26.5	--
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MILL CREEK

Tollgate	18D3M	5070	4/27	67	34.2	26.9	17.5
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KLICKITAT RIVER

Satus Pass	20D1	4030	4/28	0	0.0	13.0	--
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WHITE SALMON RIVER

Cultus Creek	21C12	4000	4/26	142	69.9	78.6	47.8*
#Surprise Lakes	21C13A	4250	4/26	172	88.7	92.7	50.5*

Not located directly on this drainage

+ Snow water equivalent estimated from aerial stadia observation

* Adjusted 1953-67 average

APPENDIX 6

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	NO.	Elevation				Last Year	Average †

WIND RIVER

Old Man Pass	21D19	3100	4/26	55	25.7	42.0	11.4
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LEWIS RIVER

Blue Lake +	21C22a	4800	4/26	288	144.0	141.0	90.1*
Bob's Trail	21C21	2200	4/26	41	20.0	26.3	5.7*
Calamity Ridge +	22D1a	2500	4/26	3	1.0	10.8	--
Council Pass +	21C18a	4200	4/26	136	69.4	68.0	35.4*
#Cultus Creek	21C12	4000	4/26	142	69.9	78.6	47.8*
Divide Meadow +	21C29a	5600	4/26	217	112.8	94.5	61.6*
Grand Meadow	21C25	3500	4/26	79	38.2	42.3	22.2*
Lone Pine Shelter	21C26	3800	4/26	140	63.9	83.4	45.3*
Marble Mountain +	22C5a	3200	4/26	100	52.0	84.2	31.3*
#Mosquito Meadows	21C19	4100	4/26	136	65.2	--	--
New Muddy River	22C6	1400	4/26	0	0.0	6.7	--
Old Man Pass	21D19	3100	4/26	55	25.7	42.0	11.4*
Plains of Abraham +	22C1a	4400	4/26	198	103.0	123.0	73.8*
Smith Creek Road	22C4	2100	4/26	29	15.2	30.7	--
Spencer Meadow +	21C20a	3400	4/26	62	30.4	42.3	13.0*
Surprise Lakes	21C13A	4250	4/26	172	88.7	92.7	50.5*
Table Mountain +	21C24a	4200	4/26	145	74.0	81.0	44.7*
Timbered Peak +	21D18a	3000	4/26	25	11.8	30.8	12.3*

COWLITZ RIVER

Cayuse Pass	21C6	5300	4/26	288	139.1	--	--
Mosquito Meadows	21C19	4100	4/26	136	65.2	--	--
Pigtail Peak	21C33	5900	4/17	246	124.7	103.2	74.1*
			5/2	233	122.2	--	77.6*
#Plains of Abraham +	22C1a	4400	4/26	198	103.0	123.0	73.8*
Potato Hill	21C14	4500	4/26	108	52.5	--	--
#White Pass (E. Side)	21C28	4500	4/17	112	50.9	41.6	27.8*
			5/2	105	51.9	40.1	26.2*
#White Pass (L. Lake)	21C27	4500	Not Measured			47.2	29.6*
			4/26	114	55.0	--	28.0*

PUGET SOUND DRAINAGENISQUALLY RIVER

Ghost Forest	21C4	4550	4/26	182	88.5	--	--
Longmire	21C3	2760	4/26	40	17.7	--	--

Not located directly on this drainage

+ Snow water equivalent estimated from aerial stadia observation

* Adjusted 1953-67 average

APPENDIX 7

SNOW

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD		
NAME	No.	Elevation	Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)		
						Last Year	Average †	
<u>NISQUALLY RIVER (Cont.)</u>								
New Paradise Park	21C35	5500	4/26	269	130.2	--	--	
Stem Glade	21C1	5050	4/26	261	123.2	--	--	
<u>WHITE RIVER</u>								
#Cayuse Pass	21C6	5300	4/26	288	139.1	--	--	
#Morse Lake	21C17	5400	4/27	183	61.2	102.6	62.4	
<u>GREEN RIVER</u>								
Cougar Mountain SP	21B42SP	3200	4/27	46	23.4	35.0	--	
Snowshoe Butte SP	21B43SP	5000	4/27	208	101.7	91.8	--	
Stampede Pass	21B10	3000	4/15	145	43.8	70.6	48.6	
			5/1	157	48.1	59.8	46.0	
<u>SNOQUALMIE RIVER</u>								
Olallie Meadows	21B2	3625	4/13	165	79.2	80.0	51.0*	
			4/27	163	81.8	88.0	48.1*	
<u>SKYKOMISH RIVER</u>								
#Stevens Pass	21B1	4070	4/14	165	78.1	74.2	55.7*	
			4/26	171	92.8	77.8	53.5	
#Stevens Pass S. Shed	21B45	3700	4/14	106	52.5	53.0	--	
			4/26	110	55.3	54.9	--	
<u>SKAGIT RIVER</u>								
Beaver Creek Trail	21A4	2200	4/26	28	11.7	24.3	5.6*	
Beaver Pass	21A1	3680	4/26	114	50.6	59.9	35.0	
Brown Top +	21A28a	6000	4/27	227	104.4	91.0	--	
Devils Park	20A4	5900	4/26	165	74.8	60.8	49.2	
Freezeout Cr. Trail	20A1	3500	4/27	42	19.0	22.3	8.3	
Freezeout Mead. Alt.	20A2	5000	4/27	88	39.2	61.1	31.6	
Granite Creek	21A29	3500	4/26	65	28.6	27.4	--	
#Harts Pass	20A5A	6500	4/26	161	71.3	65.8	49.8	
Klesilkwa	Canada	3700	4/30	64	29.5	--	--	
Lake Hozomeen	21A2	2600	4/27	28	9.9	19.5	5.8	
Meadow Cabins	20A8	1900	4/26	21	8.8	6.4	2.0*	
New Lake Hozomeen	21A30	2600	4/27	32	13.0	24.5	--	

Not located directly on this drainage

+ Snow water equivalent estimated from aerial stadia observation

* Adjusted 1953-67 average

APPENDIX 8

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	No.	Elevation				Last Year	Average †

SKAGIT RIVER (Cont.)

New Tashme	Canada	2500	5/1	35	17.1	--	--
Quartette Lake	Canada	4000	4/29	55	23.6	--	--
#Rainy Pass	20A9	4780	4/26	143	69.0	58.4	43.9
Thunder Basin	20A7	4200	4/26	87	36.8	36.1	26.9*

BAKER RIVER

Dock Butte	21A11A	3800	5/1	237	110.0	107.2	87.1*
Easy Pass	21A7A	5200	4/27	283	125.6	113.7	107.4*
Jasper Pass	21A6A	5400	4/27	281	134.0	129.2	113.6*
Komo Kulshan	21A17	800	4/28	7	3.8	6.8	--
Marten Lake	21A9A	3600	5/1	244	118.5	111.3	93.3*
Mount Blum +	21A18a	5800	Not Measured			82.3	--
			Not Measured			83.0	--
#Panorama New	21A26	4300	4/14	212	86.4	105.5	--
			4/27	215	110.3	107.8	--
Rocky Creek	21A12A	2100	5/1	91	43.7	56.0	20.4*
Schreibers Meadow	21A10A	3400	5/1	189	89.6	101.8	73.7*
S. F. Thunder Creek	21A14A	2200	5/1	0	0.0	10.3	--
Sulphur Creek	21A13	1600	5/1	42	19.9	27.3	--
Three Mile Creek	21A8A	4500	5/1	0	0.0	0.0	--
Watson Lakes	21A8A	4500	5/1	241	114.4	107.4	83.6*

NOOKSACK RIVER

Glacier Creek	21A23	3700	4/27	90	40.0	--	--
Panorama New	21A26	4300	4/14	212	86.4	105.5	--
			4/27	215	110.3	107.8	--

OLYMPIC PENINSULADUNGENESS RIVER

Deer Park	23B4	5200	4/28	66	33.1	36.9	24.3*
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MORSE CREEK

Cox Valley	23B14	4500	4/30	126	51.5	68.3	--
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Not located directly on this drainage

+ Snow water equivalent estimated from aerial stadia observation

* Adjusted 1953-67 average

APPENDIX 9

SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	No.	Elevation				Last Year	Average †

ELWHA RIVER

Hurricane	23B3	4500	4/25	83	34.4	44.0	28.0*
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SKOKOMISH RIVER

Black & White	23B7	4200	4/26	130	59.5	--	--
Black & White Lakes	23B6	4700	4/26	182	91.2	--	--
Four Streams	23B10	3000	Not Measured				
Home Sweet Home	23B5	5200	4/26	246	116.0	--	--

* Adjusted 1953-67 average

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Ecology
Washington State Department of Natural Resources

Federal:

Department of the Army
Corps of Engineers
U. S. Department of Agriculture
Forest Service
U. S. Department of Commerce
NOAA, National Weather Service
U. S. Department of the Interior
Bonneville Power Administration
Bureau of Reclamation
Geological Survey
National Park Service

PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.
Pacific Power and Light Company
Puget Sound Power and Light Company
Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
Wenatchee Heights Irrigation District

MUNICIPALITIES

City of Tacoma
City of Seattle

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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SOIL CONSERVATION SERVICE
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